

Bubo lacteus.	Thamnolea nigra.
Asio capensis.	Cisticola n. natalensis.
Halcyon orientalis.	"    ruficapilla.
Corythornis cyanostigma.	"    fulvifrons.
Bucorax cafer.	Euprinodes flavocincta.
Melittophagus bullockoides.	Sylviella rufescens.
"    pusillus cyano-	Laniarius aethiopicus mossam-
stictus.	bicus.
Tachornis parva.	Prionops poliocephala.
Turacus schalowi marungensis.	Batis puella.
Schizorhis concolor.	Nilaus afer nigritemporalis.
Centropus monachus.	Urolestes melanoleucus.
"    s. senegalensis.	Melaniparus niger niger.
Indicator indicator.	Lagonosticta sengalla rendalli.
Lybius chaplini.	"    niveiguttata.
Melanobucco torquatus.	Pyromelana xanthomelæna.
Pogoniulus chrysoconus	Vidua serena.
rhodesiæ.	Estrilda angolensis.
Caprimulgus fossei.	Anaplectes rubriceps.
Thripias namaquus.	Sitagra ocellularia.
Hirundo semirufa.	Serinus icterus.
"    s. monteiri.	Tephrocorys saturator.
"    griseopyga.	Anthus sordidus nyassæ.
Grauculus pectoralis.	Macronyx wintoni.
Pycnonotus tricolor micrus.	Lamprocolius sycobius.
Crateropus hartlaubi.	Dicrurus adsimilis.
Saxicola sp.	Cinnyris æquatorialis.
Campicola pileata.	"    leucogaster.

XXXV.—*Notes on some Birds from the Near East and from Tropical East Africa.* By Colonel R. MEINERTZHAGEN, D.S.O., F.Z.S., M.B.O.U.

(Text-figure 4.)

THE following notes have been compiled during the working out of my collections from Palestine, Syria, Egypt, and East Africa, and only those species are mentioned about which something of interest or something new has been noted.

I was in East Africa during the first two years of the war, and Mr. A. Turner continued to collect for me after I left the country, his main effort being directed towards migratory

species or geographical races of birds which occur within the Palearctic Region. I was in Palestine during nearly the whole of 1917, but the war prevented anything but a small representative collection being made, the results of which have been already published in 'The Ibis' of January 1920. I returned to the Near East in August 1919 and remained there till August 1920. During that period I spent about half my time in Syria and Palestine and half in Egypt, visiting Aleppo, Damascus, the Syrian Desert, Lebanon, Beyrouth, and the Jordan Valley, also Sollum and the Siwa Oasis in the western Desert of Egypt. I traversed the desert between Suez and Cairo twice, I visited the Fayoum twice, and the Wadi Hof near Helouan on several occasions. I finally spent a month in Crete.

Collecting was carried on everywhere and under all conditions. Powell, who did all my skinning, was at times hard-worked. On one occasion I returned to Damascus from the Syrian Desert with an Eagle-Owl, a Rock-Pigeon, three Chukar, and eleven smaller birds. Powell had the lot skinned and made up into first-class skins in six hours. Again, in the Jordan Valley (notwithstanding the sweltering heat and myriads of mosquitos) I returned with two Stone-Curlew, two Kestrel, two Little Owls, three Chukar, three Starlings, and a Dotterel. All were done that evening.

I have again to thank my friend Mr. M. J. Nicoll for so kindly housing my collections in Cairo and helping me with advice; and to Lord Rothschild and Dr. Hartert I again offer my sincerest thanks for the assistance afforded me in working out my collections at Tring. Finally, I have to thank Sir Geoffrey Archer for allowing me to look through his collection of Somaliland birds.

Wing measurements are taken flat and fully extended. Culmen measurements are those of the upper mandible from its junction with the skull, unless otherwise mentioned. All measurements are given in millimetres.

Throughout this paper the name Kenya Colony is used for British East Africa, and the name Tanganyika Territory is used for German East Africa.

**Corvus corax ruficollis** Lesson.*Corvus ruficollis* Lesson, 1831 : no locality.*Corvus umbrinus* Sundevall, 1838 : Senaar.*Corvus infumatus* Wagner, Münch. gel. Anz. viii. 1839, p. 301 : Arabia Petraea, Egypt, and Dongola.*Corvus corax krausei* Zedlitz, Orn. Monats. 1908, p. 178 : N.E. Africa, probably Suez, and El Tor in Sinai.

I have not been able to examine the type of *infumatus* which is in Munich, but I am told the specimen resembles typical *ruficollis* but has a more slender bill. The type of *ruficollis* probably came from the Cape Verde Islands (*cf.* Hartert, Nov. Zool. 1913, p. 37). As regards *krausei*, the race is based on four birds from Sinai which have black plumage with a poor gloss as opposed to the coppery plumage of *ruficollis*. They are also said to have very slender bills. As regards the black plumage, I believe these four birds are nothing more than immature *ruficollis*, which do not assume the coppery plumage till the first moult. This has already been pointed out by Hartert, and I can confirm it from birds shot in north Sinai in early autumn. But Geyr (*J. f. O.* 1918, p. 145) disagrees, and finds that birds of eight or ten months show a certain amount of brown on the head, neck, and back.

Now, as Suez is said to be one of the localities from which *krausei* comes, I would point out that I recently saw some thirty Ravens at Suez, and could see through my glasses that every bird was typical *ruficollis* as regards plumage. This was in April. There is an adult bird from Suez in the British Museum which in colour differs in no way from the birds from Egypt, India, or other localities.

The wing of *krausei* is also said to be small. Now the only Sinai bird with an exceptionally small wing is one in the Brehm Collection at Tring, labelled "Arabia Petraea," an adult male. The specimen has a much worn wing, not exceeding 350 mm., and a culmen 65 mm. long and 25 mm. high. By comparing the date on which the bird was shot with Brehm's Reiseskizzen, it must have been obtained near

El Tor. The bird is not black as *krausei* should be, but has the coppery plumage of *ruficollis*.

As regards other Sinai birds, through the kindness of Professor Koenig, who has a series from Sinai, I am able to give the following measurements:—

Wing 350–378; culmen, length 57·5–62·5, height 21–22·5.

Zedlitz (J. f. O. 1912) gives the following measurements for his series of *krausei* from Sinai:—

Wing 355–375; culmen, length 58–64, height 21–23.

Two birds from Nekhl (central Sinai) in the Giza Zoological Museum measure: wing 387–405; culmen, length 59–63, height 23; whilst a female in Koenig's collection from Sinai has a wing of 385 mm. (J. f. O. 1918, p. 147).

So Sinai birds have a wing varying from 350–405, and a culmen whose length is from 57·5 to 65 mm. and height from 21 to 25 mm.

Now from the series in the British Museum, Tring Museum, Giza Zoological Museum, and in my own collection, I have obtained the following measurements:—

Number of birds examined.	Locality.	Wing.	Culmen.	
			Length.	Height.
15	Cape Verde Islands .....	363–378	61–64	20–24
6	Algeria .....	366–389	63–68	21–24·5
15	S. Algeria (Geyr) .....	356–410	57–69	20–25
1	Nigeria .....	384	64	22
2	Siwa Oasis, W. Egypt ...	395, 406	66, 70	23, 24·5
6	Lower Egypt and Suez .	368–420	61–73	20–24
9	Upper Egypt.....	365–418	64–73	21·5–25
3	Khartoum.....	373–412	67–69	20–23
4	Sokotra .....	350–395	63–75	24–25
11	South Palestine .....	366–412	61–68	21–24
10	E. Persia and India .....	370–413	62–70	21–25·5
6	S. Arabia and Muscat ...	355–401	60–65	20–24
—	—	—	—	—
88		350–420	57–75	20–25·5

On these measurements I am unable to substantiate *krausei* or *infumatus*, and therefore shall treat them as synonyms of *ruficollis*.

I also find that *ruficollis* shows great variation, not only in size but in the amount and density of the coppery plumage, especially on the nape and mantle, and that this variation is not constant within a definite area.

*Distribution.*—(Near East.) Breeds in southern Palestine south of a line Gaza, Hebron, north to Jerusalem and east to Jericho and a few miles north. North of this line occurs *laurencei*. In winter I have seen many of the latter at Jerusalem and on the Jerusalem-Hebron road, but never in the Jordan Valley or on the eastern slopes of the southern Judæan hills. Also I have never at any season seen *ruficollis* north of their breeding area. They apparently breed in the hills throughout Sinai and near Suez on both sides of the Gulf of Suez. They breed in the Egyptian Desert fringing the Delta, but do not occur in the Delta.

West of Alexandria their place is taken at Sollum by *Corvus c. tingitanus*. At Siwa Oasis, south of Sollum, *ruficollis* is resident and common.

Fresh eggs taken in Palestine from 15. iii. to 17. iii.

#### CORVUS CORNIX.

I have examined the following birds:—

##### *North-West Europe.*

61 from Great Britain, Faroe Islands, Finland, Sweden, northern and central Russia, and Germany.

♂. Wing 316-340; culmen, length 49-60, height 19.5-22.

♀. Wing 305-331; culmen, length 49-54, height 19-21.

Hartert (Vög. pal. Fauna) gives wings of such birds as 320-340 mm., and Stresenmann (Avif. Macedon.) as 305-338 mm.

##### *Balkans.*

3 birds from Rumania.

2 ♂. Wing 311, 320; culmen, length 57.5 and 58, height 20, 22.

1 ♀. Wing 316; culmen, length 59, height 20.

Parrot gives the wings of two Greek birds as ♂ 309 and ♀ 294 mm.

Stresemann gives four males from Macedonia (mainly from Serbia) as 280-308 in wing, and three females from 288 to 306 mm.

Stresemann gives the wings of three males from Rumania as from 308 to 333, and of five females as from 291 to 303.

*Palestine.*

6 ♂. Wing 292-312; culmen, length 51-56, height 18-20.5.

8 ♀. Wing 278-301; culmen, length 45-53, height 17-19.

Gengler (J. f. O. 1919, p. 221) gives the wings of three Jerusalem birds as 300-324 and culmen length as 42-51.

Two Urfa (N.W. Mesopotamia) birds (*teste* Stresemann, Avif. Macedon.) have wings of 309 and 311.

Stresemann (*ibid.*) gives the wing of four birds from Vladikavkas (N. Caucasus) as 304-319 and one from the Crimea as 301 mm.

*Egypt.*

20 ♂. Wing 286-324, 331; culmen, length 50-58, height 17.5-20.

15 ♀. Wing 286-317; culmen, length 45-54, height 17.5-20.

*Sardinia and Corsica.*

Probably all males.

Wing 306-329; culmen, length 54-57, height 17.5-20.

Now in fresh autumn plumage (the only test for birds which bleach and wear like the Hooded Crow) I can detect absolutely no difference in the colour of the plumage between birds from all the above localities, though there is an infinitesimal individual variation which is never constant within a given area. I am unable to follow Gengler in his Review of the Corvidæ (J. f. O. 1919, p. 215) and do not find that the characters he gives to *subcornix*, *kaukasicus*, and *syriacus* hold good among fresh autumn birds.

But in winter and breeding plumage, birds appear to bleach in accordance with external conditions. In Palestine, for instance, and especially in the Jordan Valley, by January

birds are brown and not grey on the back, whereas birds from northern Europe have scarcely changed at all. In Egypt, I shot many dozen Hooded Crows from April to July, and found that by the latter month adults were as brown as Palestine birds and were indistinguishable from them.

On colour alone I therefore unite all these birds. But in size one finds that birds from northern, western, and central Europe are larger than those from the Balkans, Sardinia, Corsica, Palestine, and Egypt. I deal with birds from Crete and Cyprus later on, as they differ in plumage-colour and constitute a paler race.

The larger northern race is, of course,

***Corvus cornix cornix* L.**

♂. Wing 316–340; culmen, length 49–60, height 19·5–22.

♀. Wing 305–331; culmen, length 49–54, height 19–21.

The small southern race becomes

***Corvus cornix sardonius* Kleinschm., 1903.**

*Corvus aegyptiaca* Brehm, 1853, nom. nud.: Egypt.

*C. c. sardonius* Kleinschm., 1903: Sardinia.

*C. c. valachus* Tschusi, 1904: Rumania.

*C. c. balcanicus* Rzehak, 1906: Balkans.

? *C. c. kaukasicus* Gengler, 1919: Caucasus.

*C. c. syriacus* Gengler, 1919: Jerusalem.

*C. c. judæus* Meinertzhagen, 1919: S. Palestine.

♂. Wing 280–324\*; culmen, length 50–59, height 16·5–22.

♀. Wing 278–317; culmen, length 42–59, height 17–20.

Now birds from Cyprus appear to agree well with *C. c. sardonius* in size, but are paler, which colour is quite distinct in fresh autumn plumage. Four birds have measurements as follows:—

1 ♂. Wing 292; culmen, length 55, height 20.

3 ♀. Wing 295–298; culmen, length 48–53, height 17–20.

Stresemann (*Avif. Macedon.*) gives the wings of two Cyprus birds as 285–289, whilst Madarasz gives the wings of eleven birds as 288–313.

\* Once 331 (Egypt) and once 333 (Rumania).

It is curious that Stresemann (Avif. Macedon.) should have recognized the small southern race of the Hooded Crow as coming from the Balkans to Syria, Palestine, and Egypt, but should have united them with the Cyprus bird under the name *Corvus corone pallescens* (Mad.). In fresh autumn plumage the Cyprus bird is much paler than birds from the Balkans, Syria, Palestine, and Egypt (and Sardinia), and must be recognized as a geographical race under the name

***Corvus cornix pallescens* (Mad.).**

Cretan birds appear similar to those from Cyprus in colour but are much larger, resembling more *Corvus cornix cornix* in size :

4 ♂. Wing 316–327; culmen, length 55–61, height 20–22;

1 ♀. Wing 313; culmen, length 56, height 20;

and I have already described this bird as

***Corvus cornix minos* Meinertz. Bull. B. O. C. xli. 1920, p. 19.**

In conclusion I recognize the following races of Hooded Crow :—

*Corvus cornix cornix* L.—Large and dark. Northern, western, and central Europe.

*Corvus cornix sardonius* Kleinschm.—Small and dark. Sardinia, Corsica, probably Sicily, Balkans, probably Asia Minor, Syria\*, Palestine, and Egypt†.

\* In Syria the Hooded Crow is a common resident at Aleppo, Damascus, and Baalbek, but not in the Lebanon or Syrian Desert. On the coast they do not seem to occur north of Sidon or south and west of Khan Yunus (near Gaza). They are absent from Galilee, the Yarmuk Valley, and the northern Jordan Valley. Not seen south of Hebron. Common in coastal Palestine, the Judæan highlands north to Nablus, and in the Lower Jordan Valley near Jericho. Apparently common in Transjordan and on the Moab Plateau. (Tristram, Survey of Palestine.)

† In Egypt the Hooded Crow is confined to the Delta, and not to all of that. Absent from the Suez Canal throughout its length, and does not seem to occur much east of Tel-el-Kebir. In the western Delta they are gradually extending their range towards Alexandria, but so far have not reached that place by a few miles. The southern limit up the Nile is not yet known for certain, but they certainly occur as far south as Assuan.



*Corvus cornix pallescens* (Mad.).—Small and pale. Cyprus.

*Corvus cornix minos* Meinertz.—Medium and pale. Crete.

*Corvus cornix sharpii* Oates.—Large and pale. Western Asia.

*Corvus cornix capellanus* Sel.—Very large and very pale. Persian Gulf.

#### PASSER DOMESTICUS.

I collected large series of Sparrows at all seasons from Damascus, throughout Palestine, and in Egypt.

##### *Passer domesticus biblicus* Hartert.

Adult male in fresh autumn plumage has the back, primaries, and tail paler than in *P. d. domesticus*, the crown browner, not so bluish. Ear-coverts grey as in *P. d. domesticus*. Rump similarly coloured to the head, whereas in the typical race the head is greyer than the rump. In spring plumage the adult male more closely resembles the typical race, but the back, head, and rump are paler.

Two birds in the Tring Collection, labelled respectively Syria and Palestine, appear to more closely resemble *indicus* in the colour of the ear-coverts, which are almost pure white, but their wings—79 and 80 mm.—are nearer *biblicus*. Birds from Ereğli (S.E. Asia Minor) are similarly coloured and tend towards *indicus*. Birds from Cyprus (five examined) appear to be typical *biblicus*. Wings of five males 76–81 mm.

Palestine and Syrian birds measure :—

26 ♂. Wing 77, 79–83 mm.

4 ♀. Wing 78–81 mm.

The culmen of *biblicus* is as in the typical race.

This race occurs in Syria and Palestine, at least from Damascus and Beyrouth south to Beersheba, throughout Palestine and the Jordan Valley to the Sinai Peninsula. Also in Cyprus. Birds from Suez and the Suez Canal are *niloticus*.

A male shot on 3. iii. in the Upper Jordan Valley, with a wing of 80 mm., has a chocolate head and the back of *Passer hispaniolensis*, and is apparently a hybrid between *P. d. biblicus* and *P. h. transcaspicus*.

***Passer domesticus niloticus*.**

*Passer d. niloticus* Nicoll & Bonhote, Bull. B. O. C. xxii. 1909, p. 101 : Fayoum.

*Passer alexandrinus* Madarasz, Ann. Mus. Nat. Hist. Hung. ix. 1911, p. 340 : Alexandria.

*Passer d. chephreni* Phillips, Proc. Biol. Soc. Wash. 1913, p. 167 : Giza, near Cairo.

Much smaller than *biblicus* in both wing and culmen. The sides of the head are whiter than in *biblicus*, but the ear-coverts are grey and never white. Wing of nine males 71–75 mm., and of one female 73 mm. Two males from Alexandria run larger, having wings of 77 and 78 mm. Birds from El Arish in northern Sinai seem to be intermediate, four males having wings from 76 to 79 mm.

The common resident Sparrow of the Egyptian Delta from Alexandria to Cairo and up the Nile as far as at least Wasta and the Fayoum. Absent from Mersa Matruh and Sollum on the western Egyptian coast. No sparrows occur in the Siwa Oasis. Also common on the Suez Canal from Port Said to Suez.

***Passer domesticus halfæ*.**

*Passer d. halfæ* Meinertzhagen, Bull. B. O. C. xli. 1921, p. 67 : Wadi Halfa.

Very similar to *arboreus*, but slightly larger and less brightly coloured. Upper tail-coverts and rump pure smoky grey, whereas in *arboreus* these parts nearly always have a few feathers tipped with chestnut. The chestnut on the back is more confined and less intense. Differs from *indicus* in having the top of the head a paler brighter blue-grey and in being slightly smaller. Is at once distinguished from *niloticus* by the large extent of a brighter, purer chestnut on the back. Wing of five males 73 to 80 mm.

## PASSER HISPANIOLENSIS.

**Passer h. hispaniolensis** (Temm.).

All Egyptian birds I have examined belong to the typical race, also January birds from Sollum. The Spanish Sparrow apparently used to breed in Egypt, but has long since ceased to do so. They arrive in immense flocks from the north from September onwards and spread all over the Delta, being as common in the Alexandria Docks as they are in the Fayoum or anywhere else in the Delta. They spread far down the Nile, reaching south to Merowe, creating havoc among the crops.

In spring they begin to leave in the middle of March, and a large flock was seen at the Delta Barrage as late as 11. iv.

**Passer h. transcaspicus** Tschusi.

The common race of Palestine and Syria, extending south in winter to central Sinai. The only breeding colonies I saw were at the north-west corner of the Sea of Galilee and in the Lower Jordan Valley, but the vast majority of winter birds are migrants, breeding birds being rare. Most of the winter visitors appear to have left Palestine by the middle of March. Not seen in Palestine outside the Jordan Valley and Sea of Galilee areas.

**Passer italiae** (Vieill.).

A typical specimen shot from a flock of Spanish Sparrows at Sollum on 21. i. was a male with a wing of 76 mm. This is the first Egyptian record.

**Melanocorypha calandra hebraica.**

*Melanocorypha calandra hebraica* Meinertz. Bull. B. O. C. xli. 1920, p. 21: Jenin in northern Palestine.

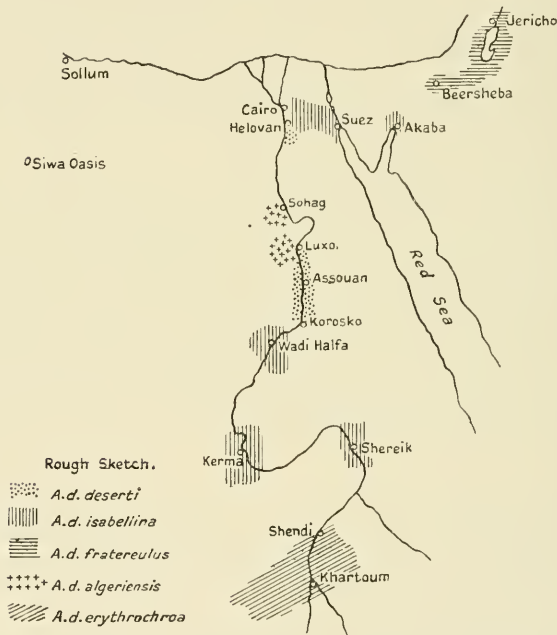
The common resident Calandra Lark of Syria and Palestine, breeding from Damascus and Baalbek to the Plain of Esdraelon in northern Palestine and throughout the coastal belt of that country. Not noted in the Judæan highlands or Jordan Valley.

***Ammomanes deserti* (Licht.).**

*Ammomanes deserti deserti* was originally described from "Ægypto super." and *A. d. isabellina* from "Asaba"—probably Akaba—in Sinai.

Birds from Cairo, Helouan, and Suez, from Wadi Halfa, Kerma (Dongola bend of the Nile), and Shereik are slightly paler than others from Assouan and Korosko. Nicoll even obtained a dark bird at Helouan and has others from Luxor.

Text-figure 4.



Sketch-map of Egypt to show the distribution of the races of *Ammomanes deserti*.

These dark birds are undoubtedly *A. d. deserti*, whilst the paler ones are certainly *isabellina*. The two races are exceedingly close, differing only in a slight colour shade. I have not examined birds from Sinai nor the type of *isabellina*, so cannot say whether they differ from Nile

Valley birds. A specimen from Beersheba is however *fraterculus*, which agrees with the dark *A. d. deserti* in colour but has a much smaller culmen. *A. d. fraterculus* is also the Jordan Valley bird. To further complicate the problem, the pink *A. d. algeriensis* occurs on the west bank of the Nile about Sohag and Luxor. *A. d. erythrochroa* Rehw. occurs farther south on the Nile at Shendi and Khartoum, and is a redder, darker bird than any of the above. I have not seen examples of *katherina* Zedlitz from the Sinai Hills.

***Ammomanes phœnicura* (Frankl.).**

The problem of this species in northern Africa is no less perplexing.

An examination of the large series of *A. p. arenicola* from Algeria, Tunis, and Kerma (Dongola bend of the Nile), together with a series of nine birds I collected near Cairo, two from the Siwa Oasis, and one from Sollum, shows the following:—

- (a) December, January, and May birds from near Cairo and Sollum have the dark colour of *A. deserti deserti*.  
Wing 89-96.
- (b) Two January birds from Siwa Oasis have the pale colour with a pink tinge of *A. deserti algeriensis*.  
Wing 90.
- (c) Spring birds from Algeria have the pale colour of *A. deserti isabellina*. Wing 92-97.
- (d) Two birds from Kerma resemble, in the one case, shot on 25. ii., Cairo and Sollum birds, and in the other case, shot on 5. iii., Algerian birds.

The problem is this. Are all northern African birds the same, or are these three races, as in *A. deserti*, geographical forms worthy of separation? If they are the same race, but having the dark (*A. d. deserti*) colour in fresh autumn plumage, pink (*A. d. algeriensis*) colour in winter, and sandy isabelline (*A. d. isabellina*) colour in spring, then the three races of *Ammomanes deserti* are probably the same bird in different seasonal plumages. This latter does not seem to be the case, for all the *A. d. algeriensis* I have seen have in both spring and autumn the pink-tinged coloration.

If all the *Ammomanes phænicura* from northern Africa are not the same race, then the Algerian bird must be called *A. p. regulus* Bp. (1857: Algerian Sahara), the Cairo and Sollum birds remain *A. p. arenicolor*, and the Siwa birds must have a new name.

Now the fact that spring and autumn birds near Cairo show a constancy of the dark coloration, rather points to there being more than one race in northern Africa, but in the absence of autumn specimens from Algeria, I refrain from coming to any definite conclusion. I also recommend to my friend Nicoll a complete Ammomanian survey of the Nile from Khartoum to Cairo, once in autumn and once in spring, also a trip to the Sinai hills, where Zedlitz's *A. d. katharine* is said to occur.

#### GALERIDA CRISTATA.

The following are the results of my investigations into the Crested Larks of Syria, Palestine, Egypt, the Red Sea, Abyssinia, and Somaliland. In all, 383 birds were examined.

##### *Galerida cristata nigricans* Brehm.

43 examined from Helouan (April), Giza (Dec.), Delta Barrage (April and May), Inchas (Jan. and March), northern edge of the Delta (Jan. to April), central Delta (Feb. to May), Kantara on the Suez Canal (Dec.).

No freshly-moulted autumn birds examined.

This is the darkest race of the Crested Larks. Breast densely spotted with rich black spots which are never very clear-cut. Under parts invariably tinged with yellowish buff, distinctly more so than in *maculata* (= *altirostris* of Hartert's Vög. pal. Fauna). Upper parts very dark, the centres of the feathers being nearly coal-black. Crown much darker than in any other race. Outer tail-feathers with black extending over the whole of the inner web and over nearly half the outer web. Remainder of feather a rich buff. (I would mention here that among Crested Larks the colour on the outer tail-feather is a very unreliable characteristic.) Average wing for thirty-four males 101.9 mm. (max. 106, min. 99), and for nine females 96.1 mm. (max.

101, min. 93). Culmen of males 21–22 mm. and for females 20 mm.

This is the characteristic race of the core of the Egyptian Delta, its southern breeding-limit being about the line Delta Barrage–Caliub–Inchas, whence its range extends north-east and north-west almost to the sea-coast, but always keeping well within the Delta and not on the outskirts.

In winter they wander, when they have been obtained at Giza and Kantara. A bird of this race found breeding at Helouan is an exception.

Two breeding birds from near Benha, some 35 miles north of Cairo, are rather pale for typical *nigricans*, but are much too dark for *maculata*. During April, Nicoll and I motored from Cairo to Benha. About Caliub the birds rapidly changed from *maculata* to *nigricans*, and at Benha nearly every bird was typical *nigricans*.

***Galerida cristata maculata* Brehm, 1858.**

*Galerida cristata altirostris* Brehm (*cf.* Hartert, Nov. Zool. 1919, p. 36).

87 birds examined from Port Said and Kantara on the Suez Canal (Feb. and March), the northern edge of the Delta (Jan., Feb., June, Oct.), western edge of the Delta (Nov.), south-eastern edge of the Delta (April and June), Alexandria (Oct.), Caliub and Benha (April), near Cairo, Giza, Pyramids, etc. (Jan. to March, May, Aug. to Dec.), Helouan (March, April, Nov., Dec.), south of Helouan at Iyat, Wasta, Khizam, Kenah, Esna, Sohag, and Luxor (Jan. to March, Sept. to Dec.).

In fresh autumn plumage the breast-spotting is almost a smudge, the spotting only appearing fairly distinct after the feather edgings have worn off; but the spotting at all seasons is large and not clear-cut, and never so dense as in *nigricans*. Upper parts paler than in *nigricans*, with less and less intense black in the centre of the feathers. Crest without so much black as in *nigricans*.

This race shows much variation in both the upper and under parts. In the series from Helouan some approach *nigricans*, whilst a breeding bird from that district is a

typical *nigricans*. Others from Cairo resemble *nigricans* in the breast-spotting, but the back is typical *maculata*. Birds shot between Caliub and Benha (north of Cairo) begin to approach *nigricans*. In size similar to *nigricans*.

Average for the wing of sixty males 102 mm. (max. 108, min. 98). Average for twenty-seven females 95.5 mm. (max. 101, min. 92). Culmen of males 19–21 and of females 18–20 mm.

This is the characteristic race on the outer fringe of the Egyptian Delta (never occurring in the desert, and sometimes occurring 20 miles within the Delta). It does not occur as a breeding species much east of Lake Mariotis or in the vicinity of the Suez Canal. It ranges far down the Nile from about ten miles north of Cairo to Wadi Halfa, where it meets *altirostris* (= *nubica* Bianchi).

In winter, birds apparently wander to the Suez Canal.

A male from Sohag, shot on 21 September (on the Nile south of Helouan), has its upper parts identical with *brachyura*, though its under parts resemble *maculata*.

#### ***Galerida cristata mœritica* Nicoll & Bonhote.**

60 birds examined from the Fayoum. This race shows a more marked constancy in its colouring than any other race under review. It is very near *maculata*, and has not got a longer wing as stated by Nicoll ('Ibis,' 1914, p. 546). Neither is it distinguishable from *maculata* by the paler coloration of the upper parts, though about 20 per cent. of the birds examined have a paler back than typical *maculata*. About the same proportion of birds have whiter under parts than *maculata*. The breast-spotting is similar to that in *maculata*, and is often more clear-cut. But not one of the differences is appreciable, nor could the separation of the bird as a geographical form be justified.

But there is a good and almost constant difference in the feathers on the lesser upper wing-coverts. In this race they are silvery-brown, whereas in *maculata* there is never any trace of this silvery colour on the lesser upper wing-coverts. It is a very slight difference, but being almost constant within a definite area, we must accept the subspecies.



The wings of forty-one males average 102.6 mm. (max. 106, min. 100 mm.) and of nineteen females 96.1 mm. (max. 100, min. 92 mm.). Culmen of ♂ ♀ 19–21.

The outer tail-feather of both this race and *maculata* is very variable, and frequently has a wedge of smoky buff on the distal end of the inner web. In other respects they do not differ from the outer tail-feathers of *nigricans*.

Confined to the Fayoum in Upper Egypt.

***Galerida cristata altirostris* Brehm.**

*Galerida c. nubica* Bianchi (*cf.* Hartert, Nov. Zool. 1919, p. 36).

18 examined from the Dongola bend of the Nile.

Culmen not so heavy as in *somaliensis* and nearer *maculata*. The general coloration on the back is very slightly redder than in *brachyura*, especially on the upper tail-coverts. This reddish colour is particularly noticeable in juvenile plumage.

Wing of eleven adult males varies from 101 to 107, once 110, culmen 19–20, and of seven females, wing from 95 to 101, culmen 17.5 to 19 mm.

The outer tail-feather is invariably paler and with less dark colour than in either of the preceding races, and invariably has a large wedge of pale buff on the distal half of the inner web.

Inhabits the Nile Valley in the Dongola bend at Merowe, Kerma, etc.

***Galerida cristata zion* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 21 : Jerusalem.**

44 examined from Damascus, the Judæan highlands, and the Sea of Galilee.

Nearest to *cinnamomina*, but without a cinnamon tinge in fresh autumn plumage. Darker than *brachyura* in autumn plumage, the feathers having blacker centres. Under parts similar to *cinnamomina*, but the breast-spotting is more marked than in *brachyura*.

In worn plumage birds become more bleached than *cinnamomina*, and are then usually indistinguishable from *brachyura* in similar plumage.

The outer tail-feather has dark colour only in the proximal third of the outer web, but in other respects appears to resemble that of *nigricans*, *maculata*, and *mærítica*.

Wing of males 98–109 mm., culmen 18·5–22. Wing of females 95–104, culmen 19–21.

This race occurs at Damascus, Baalbek, round the Sea of Galilee on all shores, and in the upper Jordan Valley, at Baisan, Jenin (northern Judæan highlands), but not round Nablus where *brachyura* occurs, south along the hills to Jerusalem, and to Hebron, about which place *brachyura* is met.

*Note.*—An adult female from Aidin, in Asia Minor, shot on 4. vii., appears similar to *zion* in colour, but has a slenderer, not longer bill. Wing 101 mm., culmen 21.

***Galerida cristata cinnamomina* Hartert.**

15 examined from Mount Carmel (Oct.), Haifa (March), Beyrouth (Oct.), and Sidon (Oct.).

In fresh autumn plumage this race has a distinct cinnamon tinge on the upper parts, unlike that of any other race under review. Breast-spotting large and well-marked. In worn plumage birds closely resemble *zion* in autumn plumage, and entirely lack the cinnamon tinge.

The outer web of the outer tail-feather is as in *zion*, but the inner web frequently has a large wedge of buff along the distal half of the shaft.

Wing of males 100–109, and of females 97–99. Culmen of males 18·5–21, and of females 18–20 mm.

Appears to be confined to the coastal strip from Mount Carmel north through Acre, Tyre, and Sidon to Beyrouth and the foot-hills of the Lebanon behind that town, ascending to about 1200 feet. There are no Crested Larks on the higher slopes of the Lebanon.

***Galerida cristata brachyura* Tristram.**

*Galerida c. caroli* Hartert, Vög. pal. Fauna, 1904, p. 234 : Natron Valley, Egypt.

*Galerida cristata eritree* Zedl. Orn. Monatsb. 1910, p. 59 : Ghedem, Red Sea coast.

103 birds examined from Nablus (northern Judæan highlands), lower Jordan Valley, Dead Sea, Sinai, Suez Canal, southern Palestine, Borollos beach in the northern Egyptian Delta, Nadi Natrun (western Desert of Egypt), coast west from Alexandria to Sollum, and from Ailet in southern Italian Eritrea.

In fresh autumn plumage the upper parts are more sandy coloured than in either *cinnamomina* or *zion*, and altogether much paler than in *maculata*. The under parts have the breast-spotting small and much concealed by the feather edgings. Birds in worn plumage are very variable, and this variation seems to depend on the amount of glare or chemical influence to which the individual has been subjected. Thus, birds from the Wadi Natrun in late winter or spring turn a sort of dirty fawn colour, those from the lower Jordan Valley becoming merely pale sandy colour. Birds from the coastal plain of Palestine bleach very little. Under parts generally whiter than in *zion*.

Three birds from Nablus are nearer *brachyura* than *zion*, and are the only birds about which I have a doubt regarding their correct determination.

I find that birds from Jericho are identical with others in similar plumage from the Wadi Natrun and Sollum. Breeding birds from Suez are identical with Jordan Valley birds in similar plumage.

Two males from Ailet in Italian Eritrea I am unable to separate from *brachyura*.

The size of *brachyura* is variable to a slight degree according to locality.

8 males from northern Sinai average 106·8 in wing.

7 males from southern Palestine average 104·5 in wing.

9 males from the Suez Canal average 104·2 in wing.

17 males from Wadi Natrun average 104 in wing.

21 males from west of Alexandria average 103 in wing.

2 males from Eritrea have wings of 103 and 104.

The average for all localities is 102·1 for 70 males and 97·6 for 33 females. Maximum wing for males 109, and

for females 100. Minimum wing for males 99, and for females 94. Culmen of males from all localities 20–22 mm.

The outer tail-feather is very variable, birds from the Jordan Valley and Sinai having usually the base of the outer web dark, and merely a dark wedge on the proximal portion of the inner web. Birds from Sollum usually have the outer tail-feather with a great deal of dark colouring on the inner web, but only the base of the outer web is dark; but such variation is never constant in any area, and every degree of intermediate design is found.

*G. c. brachyura* occurs in the lower Jordan Valley to well north of Jericho and at Nablus in the northern Judæan hills. Round both shores of the Dead Sea, throughout Sinai, and in southern Palestine from Ludd south. On the Suez Canal from Port Said to Suez, on Borollos beach (northern Egyptian Delta), at Mersa Matruh and Sollum west of Alexandria, and at the Wadi Natrun. The fact that birds inseparable from *brachyura* occur in Italian Eritrea and at Port Sudan compel me to place Zedlitz's name *eritrea* as a synonym of *brachyura*. I cannot agree with Selater and Praed ('Ibis,' 1918, p. 607) that Port Sudan birds should be united with *altirostris* (*nubica* of Bianchi).

Farther west towards Tripoli occur various races of Crested Larks, the only ones which might be contiguous to *brachyura* being *macrorhyncha* and *arenicola*. These races, which I am unable to distinguish one from the other, are larger than *brachyura* in both wing and culmen, though very similar in colour.

***Galerida cristata somaliensis* Bianchi.**

10 birds from sea-level at Berbera, all obtained in autumn and winter, appear paler than *brachyura* and have a thicker, heavier, but not longer culmen.

6 males have wings 99–105 and culmens 19–22.

4 females have wings 94, 95–99 and culmens 19–20.5.

A pair in my collection from Lake Rudolf appear exactly similar to *somaliensis*: male, wing 105, culmen 18.5; female, wing 102, culmen 19.

***Galerida theklæ* Brehm.**

At Sollum I was surprised to find birds belonging to this species. In all, twelve specimens were collected. I have not been able to compare them with specimens of *Galerida t. cyrenaica* from the type-locality, but they agree perfectly with the description of that race. This is the most easterly point in northern Africa at which these birds have been met.

Wing of five males 94 to 100 mm., culmen 16-17. Wing of four females 91-95 mm., culmen 15-17.

*Note on the influences which tend to differentiate plumage colour among the Crested Larks.*

The Crested Larks of the Near East afford interesting evidence regarding the influences which tend to differentiate plumage colour.

Beebe, when conducting experiments on some American Doves in captivity, found that artificial humidity produced darker plumaged and more variegated birds.

Ogilvie-Grant found that rainfall seemed to be a factor among Bustard-Quail in south-eastern Asia in determining the darkness or otherwise of plumage. Similarly, the darker-plumaged Robins, Song-Thrushes, etc., of the British Islands, and the still darker Hebridean Song-Thrush, seem to be influenced by the greater rainfall in their homes.

Through the kindness of the Egyptian Meteorological Department, I have been supplied with the following figures. I would point out that the percentage of humidity is the amount of moisture in the atmosphere, and has nothing to do with rainfall. Thinking that perhaps birds might be influenced by conditions during their actual breeding-season, I also worked out conditions for those months during which they breed, and the following are the results.

The races of *Galerida cristata* are arranged, beginning with the darkest-plumaged birds and ending with the palest-plumaged birds:—

Race.	Soil.	Locality.	Average per cent. humidity.		Mean rainfall in inches.	
			Year.	April & May.	Year.	April & May.
<i>Nigricans</i> .....	Black alluvial ...	Central Egyptian Delta.	70	50	1	0.3
<i>Maculata</i> .....	Dark alluvial, with a percentage of sand.	Cairo .....	68	49	1	0.2
		Helouan .....	62	43	1	0.3
<i>Meridionalis</i> ..	Dark brown, often red.	Crete .....	67	63	20	1
	Dark brown .....	Cyprus .....	77	72	15	1
<i>Cinnamomina</i>	Reddish.....	Beirut .....	68	72	35	3
	Brown .....	Haifa .....	70	70	24	1
<i>Zion</i> .....	Brown to pale brown.	Damascus.....	78	67	10	0.5
		Tiberias .....	62	56	17	1
		Jerusalem .....	65	52	24	2
<i>Brachyura</i> ...	Pale brown and sand.	Suez .....	55	38	0.6	0.1
		Gaza .....	72	67	16	0.5
		El Arish .....	76	72	3.5	0.5
		Port Said .....	74	73	1.9	0.2
		Sollum .....	76	69	6.0	0.1

From the above table, I conclude that Crested Larks are influenced in the colour of their plumage by protective resemblance to the soil on which they live, and that neither humidity nor rainfall has any effect on their plumage. This same influence appears to affect nearly all ground-birds which more or less live in the open, such as *Ammomanes*, *Alamon*, *Cenanthe deserti*, *Eremophila*, *Alectoris*, *Pterocles*, etc.

Finally, I would point out that three races of the Crested Lark (*nigricans*, *maculata*, and *brachyura*) have been living in confinement in the Giza Zoological Gardens near Cairo (where the local wild race is *maculata*) for many years, and have been subjected to identical conditions. These birds have moulted regularly true to their respective races, and have shown no inclination to change the colour of their plumage.

I do not pretend in the above note to have suggested anything new, but when this theory is worked out in detail, it may help those of us who interest themselves in the subject of the effect of external conditions on the problems of evolution.

## LULLULA ARBOREA.

Both races of the Wood-Lark occur in Palestine in winter and early spring, and are commonly met with in the Judæan highlands in small flocks. All those I have collected belong to *pallida*, whereas there is an undoubted *L. l. arborea* in the Tring Collection, collected by Aharoni at Rehoboth in the coastal plain on 16. xi. It is still uncertain which is the breeding race.

## ALAUDA ARVENSIS.

***Alda arvensis cinerascens.***

*Alda cinerea* Ehmcke, J. f. O. 1903, p. 149 : Siberia, preoccupied.

*Alda cinerascens* Ehmcke, J. f. O. 1904, p. 313 : amended name for *cinerea*.

*Alda cyprica* Ehmcke, Ann. Mus. Hung. 1904, p. 300 : Cyprus.

*Alda insularis* Ehmcke, Ann. Mus. Hung. 1904, p. 300 : Cyprus.

Both *cyprica* and *insularis* were described from winter birds, and a number of such birds which I have examined undoubtedly belong to this race and not to *cantarella*. I believe the Sky-Lark does not breed in Cyprus, though it is a common winter visitor to that island.

This grey race of the Sky-Lark is, in a large series, distinctly paler above and whiter below than *cantarella*.

All winter visitors to Greece which I have examined belong to this race; also most winter birds to Syria, Palestine, and Egypt. In 1920 they had all left Palestine for the north between 5. iii. and 10. iii., and they had all gone from Egypt by 26. iii. In western Egypt they were very common on the coast at Sollum and Mersa Matruh in January, but in the Fayoum I saw no Sky-Larks in January 1920.

***Alda arvensis schach.***

*Alda schach* Ehmcke, Ann. Mus. Hung. 1904, p. 299 : East Persia.

This excellent race from eastern Persia is easily recognized from *cantarella* or *cinerascens* by its paler and redder colour; in fact it is merely a pale but large *A. a. arvensis*, and is not a grey but a red bird in autumn plumage. I shot a male at the south end of the Sea of Galilee on 3. iii. with a wing of 119 mm. Four birds in the Tring Collection from eastern Persia have wings from 115 to 122 mm. It is the exception to find *cinerascens* or *cantarella* with wings over 115 mm.

***Alauda arvensis cantarella.***

*Alauda cantarella* Bonaparte, 1832: Central Italy.

Similar to *Alauda a. arvensis*, but lacks the redder feather edgings on the upper parts of the latter and is also much whiter below. The feather edgings are, however, browner (not so grey) as in *cinerascens*.

To this race I can only assign birds from Italy, Sardinia, Corsica, and Sicily. I have not seen typical birds from elsewhere. I have not examined breeding birds from Greece or the Balkans. Stresemann (*Avif. Macedon.* p. 66) refers all Balkan birds to this race, but as he has not compared his specimens with birds from the typical locality, his remarks are not very helpful.

***Alauda arvensis arvensis* L.**

The typical race of the Sky-Lark seems to be confined in its breeding haunts to the British Islands, Scandinavia, Denmark, and central Europe generally.

***Alæmon alaudipes alaudipes* (Desf.).**

I obtained a male in September in the Syrian Desert 40 miles east of Damascus, which appears to be a new locality. It is identical with Egyptian and Saharan birds.

I found this bird common in western Egypt about Mersa Matruh, Sollum, and on the desert between Siwa and Sollum in January.

It is also a locally common resident in northern Sinai west to the Suez Canal and east to El Arish.



**Chersophilus duponti margaritæ** (Koenig).

Common on the desert about 15 miles west of Sollum, but not seen elsewhere between Siwa and Sollum. A male obtained has a wing of 101 mm.

**Eremophila alpestris bilopha** (Temm.).

Obtained in the Syrian Desert 40 miles east of Damascus in September, where they were not uncommon, and also on the desert from Sollum to Siwa where they were scattered about in pairs in January.

**Genus ANTHUS.**

In working out my collection of Pipits from the Near East and eastern Africa, I had occasion to go into the whole question of four groups which are widely distributed over Asia and Africa, namely *CAMPESTRIS*, *SORDIDUS*, *RICHARDI*, and *LEUCOPHRYS*. For reasons given below I have united the *rufulus*-group with *richardi*.

**ANTHUS CAMPESTRIS.**

Head distinctly streaked, usually in contrast to an indistinctly or more uniform back. Breast unspotted or with a very few small indistinct spots. In juvenile plumage the back is very mottled and the breast boldly spotted.

1st, 2nd, and 3rd primaries equal, the 4th slightly shorter.

The outer web of the penultimate tail-feather is only dark brown at the base. The outer tail-feather has a triangular-shaped mark on its distal half.

Inner secondaries as long as the longest primaries.

**Anthus c. campestris** L. 1758 : Sweden.

71 examined from Europe, Algeria, Egypt, Palestine, and western Asia.

Yellowish above. About 80 per cent. are unspotted. Wing 87-98, birds from the east being frequently larger than western birds. Culmen 17-19 mm.

Breeds throughout continental Europe south from central Sweden and Norway, in Asia Minor, Palestine, and the

Mediterranean Islands (Balearics, Corsica, and Crete), Algeria, and Morocco. Common on passage in Palestine, Egypt, and Algeria. Common in winter in north Somaliland and the Sudan, straggling to Kenya Colony.

*Anthus c. griseus* Nicoll, *Bull. B. O. C.* xli. 1920, p. 25 : Turkestan.

*Agrodroma campestris minor* (nec Brehm), R. Blasius, 1900 : Etawah, N.W. India.

30 examined, including the type.

Greyish above compared with the typical race and generally smaller. About 50 per cent. are unspotted. Wing 82-90, 94, 95. Culmen 16-18. A female in Witherby's collection, shot from the nest near Peshawar in north-western India by Harington, is undoubtedly this form, and appears to be a dwarf, having a wing of only 77 mm. and a culmen of 17 mm.

Breeds in north-western India (Peshawar), Turkestan, eastern Persia, Transcaspia, and perhaps Egypt. I obtained an adult and four young birds near Helouan in Egypt on 9. xi. and 15. xi. ; obviously a family party as I saw no others. Nicoll has obtained others in autumn and winter from Egypt. It also occurs in winter in Seistan, northern India, United Provinces, Rajputana, Central India, and south to the Bombay Presidency.

#### ANTHUS SORDIDUS.

Head and back of adults in fresh autumn plumage more or less indistinctly blotched or streaked. In worn plumage the upper parts tend to become more uniform. General colour above brown, without any of the olive tinge which occurs in the *leucophrys*-group. Breast distinctly marked with diffused spotting in all forms, but in Persia and Palestine one occasionally finds birds with unspotted breasts.

1st to 4th primaries usually almost equal.

The outer web of the penultimate tail-feather is black-brown with a paler fringe. Outer tail-feather never with pure white on it, but yellowish-buff or brown to yellowish-white.

Inner secondaries do not reach to the end of the longest primaries.

Culmen longer, slenderer, and less arched than in birds of the same size among the *leucophrys*-group.

**Anthus s. similis.**

*Anthus similis* Jerdon, Madr. Journ. xi. 1840, p. 35 : Jalna, Hyderabad (Deccan), about 200 miles E. by N. of Bombay City.

*Anthus cockburniae* Oates, Fauna Brit. India, ii. 1890 : Nilgiri Hills, S. India.

36 examined.

Darker than *jerdoni* and wing slightly smaller. Resident in the hills of southern India.

**Anthus s. jerdoni.**

*Anthus jerdoni* Finsch, Trans. Zool. Soc. vii. 1872, p. 24 : Kotgurb, N.W. Himalayas near Simla.

29 examined.

Paler and larger than *similis*. Paler (more sandy) and more uniformly marked than *sordidus*, *hararensis*, or *arabicus*. Distinctly yellower than *captus* or *decaptus*, the under parts being more fulvous than *hararensis* but not so dark as in *sordidus*. Wing 91–104, culmen 18–20.

Breeds in Cashmir and in the Himalayas at Murree, Simla, Chakrata, and Mussoorie, perhaps east to Sikkim. In winter birds descend to the plains of the Punjab and to the Dehra district.

**Anthus s. decaptus.**

*Anthus s. decaptus* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 23 : Rud-i-Taman, eastern Persia.

45 examined.

Very similar to *captus* but larger. In fresh autumn and worn plumage the colour of the upper parts does not differ from *captus*, but in autumn plumage the lower parts are more ochreous, and in winter and worn plumage the lower parts are not so white as in *captus*. The spotting on the breast is usually better defined than in *captus*.

In juvenile plumage birds are much more mottled than in adults, both on the back and head, and have broad fulvous margins to the inner secondaries. The breast spotting is also more distinct than in adults. Wing 95–106, culmen 18·5–21·5.

Breeds in Persian Baluchistan, eastern Persia, and in the hills of northern Baluchistan round Quetta, wandering to Sind in winter.

***Anthus s. captus.***

*Anthus leucophrys captus* Hartert, Vög. pal. Fauna, 1905, p. 269 : Wadi Zerka, Jordan Valley.

17 examined, including the type.

Paler and greyer than any form except *decaptus*, and much less uniform than *jerdoni* on the upper parts. Under parts with a slight rufous tinge in fresh autumn plumage, which becomes almost white in winter. Wing 90–95, culmen 18–20.

Resident in the Lebanon and Hermon systems of Palestine and Syria and in the Judæan highlands, but not reaching much farther south than Jerusalem. In winter a few birds descend to the Jordan Valley.

***Anthus s. arabicus.***

*Anthus s. arabicus* Hartert, Nov. Zool. 1917, p. 457 : Menakha, Yemen, S.W. Arabia.

38 examined, including the type.

Upper parts and sides of the head darker than in *captus* or *decaptus*. Under parts more heavily marked and browner. Larger and more heavily spotted than *harurensis*. Wing 90–101, culmen 18·5–20.

So far only known from Yemen in south-western Arabia.

***Anthus s. sokotræ.***

*Anthus s. sokotræ* Hartert, Nov. Zool. 1917, p. 457 : Socotra.

8 examined, including the type.

Intermediate on the back between *captus* and *arabicus*, being paler above and whiter below than in the latter form. Wing smaller and culmen larger than in *arabicus*. Wing 83-90, culmen 20-21.

**Anthus s. hararensis.**

*Anthus nicholsoni hararensis* Neumann, J. f. O. 1906, p. 233: Abu Bekr, near Harar, Abyssinia.

42 examined, including the type.

Scarcely separable from *arabicus*.

Upper parts not so dark and under parts not so heavily spotted and more rufescent than in *arabicus*, to which it seems nearest. I am unable to separate birds from northern Somaliland from Harar birds, though some are imperceptibly paler. Wing 93-98, culmen 17.5-19, 21.

Harar in Abyssinia to the hills of northern Somaliland.

**Anthus s. jebelmarraë.**

*Anthus s. jebelmarraë* Lynes, Bull. B. O. C. xli. 1920, p. 16: Jebel Marra, Darfur.

3 examined, including the type.

Nearest to *hararensis*, but differs in almost entirely lacking the breast-spotting, and the whole plumage is suffused with bright tawny olive. Tail very dark, almost black (instead of brown), and the pale spot on the penultimate tail-feather is reduced to a tiny mark at its extreme tip. Wing 90-95, culmen 19.

So far only known from the Darfur Hills in western Sudan.

**Anthus s. asbenaicus.**

*Anthus s. asbenaicus* Rothschild, Bull. B. O. C. xli. 1920, p. 33: Asben (Aïr), central Sahara.

10 examined, including the type.

Very near *jebelmarraë*, but is slightly paler above and much paler below and with a more distinct breast-spotting. Penultimate tail-feather with more brown at its tip than in *jebelmarraë*. More rufescent than *hararensis*, especially on

the rump, the breast-spotting being less distinct and the whole under parts generally paler. Wing of males 91-98 mm., culmen 19-20.

So far only known from the mountains of Air in the central Sahara.

***Anthus s. sordidus.***

*Anthus sordidus* Rüppell, Wirbelthiere von Abyss. 1835, p. 103, pl. 39. fig. 1: Simen Province, Abyssinia.

Simen, Semyen, or Samen Province is in northern Abyssinia between Lake Tsana and Massowah.

24 examined from Shoa in the central highlands of Abyssinia, some 200 miles south of the typical locality.

Much darker and more uniform above, and much redder below than *hararensis*. Wing 97-102, culmen 17-18.

Inhabits the hills of central and northern Abyssinia.

***Anthus sordidus* subsp. ?**

Sclater and Praed (Ibis, 1918, p. 615) thought that birds from Erkowit (behind Suakim on the Red Sea coast) did not agree with any race, though nearest to *hararensis*, but they were less plainly striped on the back. The specimen on which Sclater and Praed made the above remarks was obtained in March. Though undoubtedly belonging to the *sordidus*-group, it is unlike any race either at Tring or in the British Museum. The plumage, however, strikes me as being juvenile, though the time of year when it was shot rather points to this not being the case.

***Anthus s. longirostris.***

*Anthus nicholsoni longirostris* Neumann, J. f. O.—1906, p. 232: Gardulla, west of Gandjule Lake (which is the same as Lake Abaya in southern Abyssinia, 150 miles N.E. of the northern end of Lake Rudolf).

26 examined, including the type.

Nearest to *sordidus* and much darker than *hararensis* or *arabicus*. Not quite so dark as *sordidus* and apparently less uniform on the back. Under parts not so fulvous as in

*sordidus* and more heavily spotted. Wing 90-102, culmen 17-19.5.

This race appears to extend from southern Abyssinia to Kenya Colony, where I collected specimens at Naivasha and Nakuru in the Rift Valley, and I have examined others from Kisumu on the Victoria Nyanza and the Kedong Escarpment.

***Anthus s. nyassæ.***

*Anthus nicholsoni nyassæ* Neumann, J. f. O. 1906, p. 233 : near Songea in Tanganyika Territory, east of the north end of Lake Nyasa.

I have not examined any specimens from the type-locality.

Upper parts (*teste* Neumann) spotted as in *nicholsoni* and *longirostris*, darker than *longirostris* but with a different and more brownish tone on the plumage. Lower breast and abdomen darker than *nicholsoni* or *longirostris*, sharply defined from the pure white chin and throat. Sides of head darker. Wing and culmen smaller. Wing 86-95.

Inhabits the country north and north-east of Lake Nyasa to Uhehe in Tanganyika Territory.

***Anthus s. nicholsoni.***

*Anthus nicholsoni* Sharpe ed. Layard's B. S. Afr. 1884, p. 536 : South Africa ; no definite loc.

Many examined from Zululand and Bloemfontein.

Above paler (yellower) and more uniform than *longirostris*. Below not so fulvous and less heavily spotted.

Appears to extend throughout Cape Province (Capetown and Kingwilliamstown) to Bloemfontein and the Vaal River in the Transvaal, and to Zululand and perhaps Damaraland.

ANTHUS RICHARDI.

In comparing the *richardi*- and *rufulus*-groups from Asia, I was struck by the lack of any definite character distinguishing them, and am therefore inclined to agree with Stresemann (Nov. Zool. 1912) and Hartert (Vög. pal.

Fauna) in uniting them all as geographical races of the same species; in fact, some specimens of typical *rufulus* from India are merely small editions of *A. r. richardi* or *striolatus*.

Having united Asiatic *A. rufulus* with *A. richardi*, it is only logical to include as geographical races of *richardi* the various African races which hitherto have been treated as races of *rufulus*. Osear Neumann apparently came to the same conclusion (J. f. O. 1906, p. 231).

Head and back always distinctly and usually boldly blotched and streaked. Breast always distinctly spotted.

2nd and 3rd primaries usually equal and longest, but 1st and 4th come very close.

The outer web of the penultimate tail-feather is only dark brown at the base. The outer tail-feather has a triangular-shaped white mark on its distal part. This white is rarely tinged with buff or brown.

Inner secondaries usually shorter than the longest primaries, but frequently equal to them and occasionally longer. This variability occurs most frequently in birds from tropical and southern Africa.

Hind claw longer than in the *campestris*-, *sordidus*-, or *leucophrys*-groups, when birds of the same size are compared.

#### ***Anthus r. richardi*.**

*Anthus richardi* Vieillot, Nouv. Dict. d'Hist. Nat. xxvi. 1818, p. 491: France.

35 examined.

Distinguished at once from all other races by its huge hind claw and longer wing. Wing 90–100, culmen 15·5–18, hind claw 16–22 mm.

Breeds in central and southern Siberia, and in eastern Turkestan to the Altai and Tianshan systems, east to Manchuria and northern China—Kansu, Szechwan, Nanshan, Kukunor, and the upper Hoang Ho.

Winters in Europe west to England and France, in Egypt, the Sudan, Palestine, Asia Minor, India, and Ceylon, Siam (rare), southern China, and Hainan.



***Anthus r. sinensis.***

*Corydalla sinensis* Bonaparte, Consp. Av. i. 1850, p. 247 : southern China.

*Corydalla infuscata* Blyth, Journ. As. Soc. Bengal, 1861, p. 96. Type-locality given as the Philippines, but the specimen came from the hills of Foochow in southern China (*cf.* Swinhoe, P. Z. S. 1863, p. 272).

Bonaparte's description of *sinensis* is that the bird is smaller, darker, and more fulvous—"fusco-ferruginea"—below. I think there is little doubt he meant this race.

13 examined.

This appears to be a good race, though a series of breeding birds are badly needed. Those I have examined are mostly winter birds, but are distinctly smaller than *A. r. richardi* and incline to be more rufous below. But some examples of the typical race from southern Siberia and Turkestan are equally rufous below, though this is the exception. Wing 85-91, culmen 17-18, hind claw 15-19 mm.

La Touche, who appears to recognize this southern Chinese race of Richard's Pipit (Ibis, 1905, p. 46), states that they breed on the low hills round Foochow, laying in April and May. They arrive from the south in April and leave for the south in October, whereas *A. r. richardi* is but a winter visitor to Foochow, arriving from the north in October and leaving again in April. Obtained in Hainan and the Philippines in winter.

***Anthus r. striolatus.***

*Anthus striolatus* Blyth, J. A. S. Beng. xvi. 1847, p. 435 : Darjiling, eastern Himalayas.

12 examined.

Hind claw smaller than in either of the preceding races. Frequently with less white on the penultimate tail-feather than in *A. r. richardi*. Slightly paler, more tawny, than *sinensis*. Wing 87-99, culmen 16-17.5, hind claw 10.5-15.5 mm.

Breeds in Central Asia and the Himalayas :—Argun River (*Dybowski*), Ala Shan (*Przewalski*), and Sikkim at 15,000 ft. (*Blanford*). Passes through southern Tibet in September

on autumn passage (Ibis, 1906, p. 61), and winters in Assam, northern Siam, southern Tenasserim, and throughout the Indian Peninsula south to Ceylon.

***Anthus r. rufulus.***

*Anthus rufulus* Vieillot, Nouv. Dict. d'Hist. Nat. xxvi. 1818, p. 294: Bengal.

22 examined from Bengal, Nilgiris, Mysore, Etawah, Central Provinces, Cashmir, Sikkim, and Yunnan.

Browner and redder on the upper parts than any of the following four races. Under parts tinged with rufous as in *malayensis*, and darker below than *lugubris*. Much smaller than any of the preceding races. In all characteristics it is nearest to *cinnamomeus* from Abyssinia.

Birds from Ceylon appear somewhat smaller (wings 76–82 mm.) and darker, whilst birds from southern India appear slightly more rufous than Bengal birds. Wing 76–86, culmen 15–18, hind claw 9, 10–15 mm.

Is apparently resident in the whole of India from Cashmir to Ceylon, and east throughout the Himalayas below 6000 ft. to Yunnan, where it must meet *sinensis* somewhere in southern China.

***Anthus r. medius.***

*Anthus medius* Wallace, P. Z. S. 1863, p. 488: Timor.

21 examined.

Above darker than *rufulus*, but very similar to *malayensis* and *lugubris*. Under parts much whiter than *rufulus*, *malayensis*, and *lugubris*, but not almost pure white as in *albidus*. Hind claw similar to *albidus*, and much smaller than in *malayensis* and *lugubris*. Wing 82–86, culmen 16–17, hind claw 10–11 mm.

Inhabits (*teste* Stresemann) Timor, Kisser, Savu, Letti, Moa, and Sermata.

***Anthus r. albidus.***

*Anthus r. albidus* Stresemann, Nov. Zool. 1912, p. 316: South Flores.

13 examined, including the type.

Darker above than any of the other small Asiatic forms, and completely lacking any rufous tinge. Under parts pure white. Hind claw smaller than in *malayensis* or *lugubris*, but as in *medius*. Wing 78-83, culmen 16-17, hind claw 10-11 mm.

Inhabits Bali, Lombok, Sumbawa, Flores, and Sumba.

***Anthus r. malayensis.***

*Anthus malayensis* Eyton, P. Z. S. 1839, p. 104: Malacca. 26 examined.

Above similar to *medius* and *lugubris*. Under parts as in *rufulus*. Hind claw similar to *lugubris* and larger than either *albidus* or *medius*. Wing 80-87, culmen 11-12.5, hind claw 11-16 mm.

Inhabits Malay Peninsula, Sumatra, Java, and perhaps Borneo (*Stresemann*).

***Anthus r. lugubris.***

*Corydalla lugubris* Walden, Trans. Zool. Soc. London, ix. 1877, p. 198: Philippines.

10 examined.

Above similar to *malayensis* and *medius*. Under parts redder than in *medius*, but not so red as in *rufulus* or *malayensis*. Breast-spotting much less distinct than in the four previous races. Hind claw as in *malayensis*. Wing 75-82, culmen 11-12, hind claw 12-15 mm.

Inhabits the Philippine Islands and Palawan.

***Anthus r. cinnamomeus.***

*Anthus cinnamomeus* Rüppell, Neue Wirbelthiere, p. 103, 1835: Simen, Abyssinia.

For the position of Simen, see under *Anthus sordidus sordidus*.

Over 30 examined from Addis Abeba and Ailet in Italian Eritrea near Massowah, and southern Abyssinia.

These birds agree with Rüppell's description, and although much larger than *A. r. rufulus*, are somewhat similar but more cinnamon in colour. Very similar in colour to *A. r. raulteni* from South Africa, but slightly darker.

Two birds from Senaar and Eritrea seem to be very near, but are slightly less cinnamon. Selater and Praed (Ibis, 1918, p. 615) found no birds of this race in the Butler, Chapman & Lynes, or Christy collections; but there are in the British Museum examples from Khartoum and the Lado Enclave which they assign to this race, and which have presumably been compared with Abyssinian birds.

Wing 88-96, culmen 16-17.5, hind claw 11 mm.

Apparently inhabits the highlands of Abyssinia, east to Ailet near Massowah, and perhaps west to the Sudan.

*Anthus r. annæ*, subsp. nov.

A series of 17 birds in the collection of Sir Geoffrey Archer from northern Somaliland, 6 of which are in freshly-moulted plumage, when compared with *cinnamomeus* from Abyssinia, shows that the Somaliland race almost completely lacks the cinnamon tinge of the Abyssinian birds. They are a much browner bird. Under parts much whiter. Generally smaller in both wing and culmen. Birds from south-western Arabia agree in every way. In worn plumage they bleach to various shades of dull uniform brown or earth-brown.

Wing of males 86-89 mm., culmen 16-18 mm.

Wing of females 78-86 mm., culmen 15-16 mm.

Hind claw 9-11 mm.

It is curious that Hartert (Nov. Zool. 1917) and other writers should have assigned this distinct race to *A. r. cinnamomeus*.

Type. ♀ 29. ix. 18, Megago, northern Somaliland, 4000 feet (No. 1571, coll. G. Archer).

*Anthus r. lacuum*.

*Anthus r. lacuum* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 22: Lake Naivasha in Kenya Colony.

84 examined.

Darker, less cinnamon and more fulvous than *cinnamomeus*. Generally a greyer bird. Wing 82-91, 95, 99, 100; culmen 15-17, 18; hind claw 9-12.5 mm.

Appears to be a resident from the coast at Bagomoyo (Tanganyika Territory) to the north end of Lake Tanganyika,

between (Albert) Edward and Kivu lakes, around the Victoria Nyanza, Lake Nakuru, Naivasha, and on the Kedong Escarpment, Nairobi and the Athi plains, and at Nyeri in Kenya Colony.

A single bird from Taveta very closely resembles *cinnamomeus*. Birds from the west of Victoria Nyanza are slightly more cinnamon than birds from east of that lake, but such variation is not sufficiently distinct or constant to warrant a further separation.

***Anthus r. cameroonensis.***

*Anthus cameroonensis* Shelley, Birds of Africa, ii. 1900, p. 320: Camaroon Mountain, 10,000 ft.

Three birds from 130 km. west of Lake Tanganyika and at over 6000 feet appear to agree with typical examples. A fourth bird in the Tring Collection from the same locality agrees better with *A. r. lacuum*.

This is the darkest race of the species, and looks like a melanistic variety when compared with other races. Upper parts with black centres to the feathers and dark fulvous fringes. Breast thickly spotted with black, throat whitish, abdomen and lower breast fulvous. Wing 92-96, culmen 16-17, hind claw 9-10 mm.

Camaroon Mountain and the hills of central Belgian Congo.

***Anthus r. raalteni.***

*Anthus raalteni* Temm. MSS. Lichtenstein, Verz. Vög. Säuget. Kaffernl. 1842, p. 13: South Africa.

Original description not examined.

16 specimens examined.

Very close to *cinnamomeus* but paler. Not so grey as *lacuum*. Wing 82-93, culmen 15-17, hind claw 9-13.

Resident in the Transvaal, Natal, and on the Limpopo River.

***Anthus r. bocagii.***

*Anthus bocagii* Nicholson, Ibis, 1884, p. 469: Angola.

39 specimens examined.

A paler and greyer bird than *raalteni*. Wing 85-95, culmen 16-17, hind claw 9-14 mm.

Southern Angola.

The *leucophrys*-group of Pipits are in no sense Palaearctic, but as I was compelled to work them out when dealing with the *sordidus*-group, I give the results of my labours.

I found that the *leucophrys*-group of plain-backed Pipits showed great variation in the same area: in Angola and tropical eastern Africa it was obvious that a dark and pale race co-existed. The differences did not appear to be dimorphic. I tried to separate birds on structural differences, but failed. Culmen, tail-feathers, size of wing, etc., all failed. I was therefore compelled to separate birds on colour alone, and find that they fall very well into two groups or species, a dark bird whose oldest name is *gouldi*, and a pale bird whose oldest name is *leucophrys*.

Owing to the difficulty in describing these various colours, I have had to resort to Ridgway's 'Nomenclature of Colours,' 1886, reference being given in brackets, thus (R. iii. 19), meaning Ridgway, pl. iii. fig. 16.

#### ANTHUS LEUCOPHRYS.

Upper parts entirely uniform, except in immature birds when slight traces of blotching occur. General colour above yellowish dark earth-brown, sometimes with a slight olive tinge, but the shade is very variable. Under parts always tinged with fulvous, darkest in *saphiroi*, palest in *neumanni*. Breast-spotting usually indistinct and blurred, though in *goodsoni* it is frequently well-marked.

Throat whitish in contrast to the rest of the under parts.

First four primaries more or less equal.

Tail-feathers very variable, but never with white on them as in the *richardi*-group.

Inner secondaries usually fall short of the tips of the longest primaries, but sometimes equal them.

Culmen stumpier than in the *sordidus*-group and more arched.

**Anthus l. leucophrys.**

*Anthus leucophrys* Vieillot, Nouv. Dict. xxvi. 1818, p. 502 :

“Cape of Good Hope.”—The main points in the original description are:—“An eye-stripe extending to the sides of the head. Whole upper parts brownish grey, with small blackish spots on the head.” This clearly indicates the pale bird and not the darker race of the *gouldi*-group, though the marked eye-stripe is more characteristic of the latter group.

Upper parts dark sepia (R. iii. 3), lower parts wood-brown (R. iii. 19). Breast-spotting indistinct and smudgy. Wing 93–101, culmen 18, and hind claw 12·5 and 13 mm.

Cape Province, southern Natal, Zululand, and the southern districts of the Orange Free State.

**Anthus l. vaalensis.**

*Anthus vaalensis* Shelley, Birds of Africa, ii. 1900, p. 311 : Newcastle in northern Natal.

Upper parts paler than in the preceding race and uniform bistre (R. iii. 6). Under parts pale wood-brown (R. iii. 19). Breast-spotting indistinct and smudgy. Larger wing and smaller hind claw than in *A. l. leucophrys*. Wing 102–107, culmen 17–18, and hind claw 9–11 mm.

This Pipit inhabits northern Natal, Transvaal, Bechuanaland, and the Orange Free State south to Bloemfontein. A bird from Deelfontein (Cape Province) in the British Museum appears to be also of this race. As the specimen has no original label, I do not attach much importance to it.

**Anthus l. neumanni.**

*Anthus l. angolensis* Neumann, J. f. O. 1906, p. 236 : Ambaca in Angola. Name preoccupied by *Anthus angolensis* Bocage, Journ. Sci. Lisboa, viii. 1870, p. 341, which from the description is obviously *Anthus chloris* of Lichtenstein.

*Anthus l. neumanni* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 23. (Type and description as for *Anthus l. angolensis* Neumann, J. f. O. 1906. No. 158 in the Tring Museum.)

Upper parts slightly paler than *A. l. leucophrys*, but not so pale as is *vaalensis*. Lower parts slightly whiter and breast-spotting more distinct than in *vaalensis* or *A. l. leucophrys*. Smaller than *vaalensis*. Wing of 16 males 98–105, and of 10 females 90–98 mm. Culmen 15–18 and hind claw 9–11 mm.

Inhabits Angola. Does not occur in Masailand or tropical eastern Africa (as stated by Neumann, J. f. O. 1906), where it is replaced by *Anthus l. goodsoni*.

***Anthus l. goodsoni*.**

*Anthus l. goodsoni* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 23: Nakuru, Kenya Colony. Type in the Tring Museum.

Upper parts as in *A. l. leucophrys* and slightly darker than in *neumanni*, though a bird from Nyeri just to the west of Mount Kenya is as pale as *neumanni*. Under parts paler than in *A. l. leucophrys* and as in *neumanni*. Breast-spotting even more distinct than in *neumanni* and much more pronounced than in *A. l. leucophrys*. Wing and culmen as in *A. l. leucophrys* and *neumanni*, but the hind claw generally longer than *neumanni*. Wing of males 95–102, and of females 90–97 mm. Culmen 15–18 and hind claw 10–13 mm.

Inhabits Masailand, Nakuru, Nairobi, Naivasha, and north to the base of Mount Kenya. Also found in Uganda at Bukoba on the western shores of the Victoria Nyanza, and apparently near Lake Kivu.

***Anthus l. saphiroi*.**

*Anthus l. saphiroi* Neumann, J. f. O. 1906, p. 235: Belassiri, near Harar in Abyssinia. Type in the Tring Museum.

This is the darkest form of the *leucophrys*-group except *zenkeri*, and stands very near *Anthus s. sordidus*, from which it differs in its plainer back and slightly paler upper and lower parts.

Darker than in *A. l. leucophrys* on the upper parts. Under parts pale cinnamon (R. iii. 20). Breast-spotting more distinct than in *A. l. leucophrys*. Wing of males 95–102, and of two females 91–93 mm. Culmen 15–18 and hind claw 9–12 mm.



Inhabits southern Abyssinia. Three birds from north-western Somaliland in the British Museum are nearest the race, and a series collected by Archer from northern Somaliland are identical with topo-typical specimens.

***Anthus l. zenkeri.***

*Anthus l. zenkeri* Neumann, J. f. O. 1906, p. 235 : Jaunde, Camaroon. Type in the Berlin Museum.

None examined. Described from three specimens. Said to be near *saphiroi*, but the upper parts are slightly darker. Edgings to the wing-coverts and wings a darker rust-red. Also a redder-rusty tinge on the rump and upper tail-coverts. Wing 91-94, culmen 15-16 mm.

In the Gold Coast, Northern and Southern Nigeria, occurs a race of *leucophrys* which is probably *A. l. zenkeri*. These birds are smaller (wing 87-97) than *A. l. leucophrys*, but the upper parts are very similar, though slightly darker than *saphiroi*, and have on an average more rust-colour on the upper tail-coverts. Breast-spotting much more distinct than in *A. l. leucophrys*.

A series of Pipits of the *leucophrys*-group from the Belgian Congo, Nyasaland, and N. Rhodesia, also appear to agree with the description of *zenkeri*, but until the type or typical birds have been examined, such questions cannot be definitely decided.

ANTHUS GOULDI.

This group differs from the *sordidus*- and *leucophrys*-groups in having uniform dark brown upper parts, without a trace of mottling except in immature birds. The colour is much darker in every race of this species than it is in any of the *leucophrys*-group, and often assumes a colour not unlike a very dark maroon with a tinge of plum-colour. Eye-stripe better developed than in *leucophrys*. No trace of yellowish or olive on the upper parts as in *leucophrys*.

Under parts always suffused with dirty ochreous, darkest in *omoensis* and paler in *prunus*. Breast-spotting indistinct,

but a large percentage of birds are more distinctly spotted than those of the *leucophrys*-group.

Throat white, in contrast to the rest of the under parts.

First four primaries almost equal.

Outer tail-feather always darker than in the *leucophrys*-group.

Inner secondaries invariably fall short of the tips of the longest primaries.

Culmen as in the *leucophrys*-group, and, if anything, more stumpy.

***Anthus gouldi omoensis*.**

*Anthus leucophrys omoensis* Neumann, J. f. O. 1906, p. 234: Ergino Valley, between Gofa and Doko on the Omo River. The Omo is in southern Abyssinia and flows into the north end of Lake Rudolf. Type in the Tring Museum.

Upper parts uniform dark hair-brown (R. iii. 12), lower parts raw umber (R. iii. 14). Wing 92-100, culmen 11-18, hind claw 9-12 mm.

Inhabits the Omo River Valley in southern Abyssinia.

***Anthus gouldi turneri*.**

*Anthus g. turneri* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 24: Kituni, N.W. Kenya Colony. Type in the Tring Museum.

Upper parts uniform dark hair-brown (R. iii. 12). Under parts pale wood-brown (R. iii. 19) and not so dark as in *omoensis*. Breast-spotting large and distinct, with pear-shaped blotches.

Wing of males 94-100, and of females 90-95 mm. Culmen 15-19, hind claw 9-13 mm.

Inhabits the northern, eastern, and western shores of the Victoria Nyanza, and north to Mount Elgon.

Birds from southern Abyssinia and the Sudan provinces of Mongalla and Bahr-el-Ghazal appear to belong to this race, though Sudan birds are slightly paler below and are not so heavily marked on the breast.

***Anthus gouldi gouldi.***

*Anthus gouldi* Fraser, Proc. Zool. Soc. London, 1843, p. 27: Cape Palmas on the extreme south-east of the Liberian coast.

Upper parts as in *turneri*. Under parts slightly paler. Generally a smaller bird. Wing 87-93, culmen 15-17, hind claw 10-12 mm.

Inhabits Liberia, Sierra Leone, and the Gambia.

***Anthus gouldi prunus.***

*Anthus g. prunus* Meinertzhagen, Bull. B. O. C. xli. 1920, p. 24: Benguella, Angola. Type in the Tring Museum.

Upper parts very similar to those of the rest of the group, but with frequently a maroon or almost plum-coloured tinge on the rich uniform hair-brown (R. iii. 12). Under parts varying from pale wood-brown (R. iii. 19) to whitish. Breast spotting indistinct in adults but clearly marked in immature birds. Well-developed eye-stripe extending back to the sides of the head.

The upper parts of immature birds are slightly tinged with yellow, paler and inclined to be blotched.

Wing of males 93-102, and of females 90-101 mm. Culmen 15-17 and hind claw 10-15 mm.

Inhabits Angola.

***Anthus gouldi bohndorffi.***

*Anthus leucophrys bohndorffi* Nennmann, J. f. O. 1906, p. 236: Kassongo on the Upper Congo. Type in the Berlin Museum.

None examined, but from the description probably belongs to this group.

Upper parts as dark or darker than *omoensis*. Under parts, except for the white chin, very dark. The centre of the under parts paler—dirty white—and the flanks dark earthy brown. Its chief character in relation to *omoensis* is in the centre of the under parts being differently coloured to the flanks.

Described from one specimen. Wing 96, culmen 14 mm.

## MOTACILLA FLAVA.

I have attempted in the following notes to collate from my own observations and from all published material a résumé of the migratory movement of the races of *Motacilla flava* which occur in the Near East and in eastern Africa south to the Cape.

**Motacilla f. flava** L.

Autumn passage commences in Palestine in early August and in Egypt in late August, birds becoming common in the former country by 21. viii. and in Egypt by 8. ix. Passage continues till the end of September and early October. Birds do not remain through the winter in Palestine, but a few appear to do so in Egypt.

In the Sudan they arrive throughout October and remain through the winter.

They commence arriving in Kenya Colony and Uganda from 30. ix., and are common throughout the winter.

Autumn migration passes well inland, down the Nile and Rift Valleys, only a few birds passing down the coast. Many birds continue south to Natal and the Transvaal, where I have seen them at Pretoria on 6. xi. and at Harrismith on 4. xii.

Birds commence to leave South Africa towards the end of March, and large numbers pass north through Kenya Colony throughout April. The latest spring record for eastern Africa seems to be 2. v., but the bulk have passed by 20. iv.

This race was not noted passing up the coast of eastern Africa on spring passage.

The masses of Yellow Wagtails of all sorts—mainly *M. f. campestris*—which collect at Entebbe at the north-western corner of the Victoria Nyanza from late March to late April form one of the most wonderful sights I have ever seen. Acres and acres of grass-land are carpeted with yellow, the birds huddled together, resting and feeding, many rising a few inches into the air, catching flies and mosquitoes, and others too tired to fly and merely running on before one's feet.

Spring passage in the Sudan extends commonly to the middle of April, and birds have been obtained as late as 12. v. Spring passage north leaves the Egyptian Delta to the east and passes over the Fayoum and Wadi Natrun. The absence of migratory Yellow Wagtails from the Egyptian Delta in spring is most remarkable. Passage in the Fayoum and Wadi Natrun extends from about 15. iii. to well on into April, being very strong from 18. iii. to 20. iii.

A few pass north through Palestine from the middle of March to the middle of April, and birds have been obtained on spring passage in Sinai from 31. iii. to 30. iv.

***Motacilla f. dombrowskii* (Tschusi).**

No autumn record for Palestine, Egypt, or the Sudan. Six obtained in the Sudan from 31. iii. to 17. iv. Not uncommon on spring passage in the Fayoum and in Sinai. Obtained in Palestine on 22. iii.

No record from Kenya Colony or Uganda.

***Motacilla f. beema* Sykes.**

No record for Egypt or the Sudan. A few obtained in Kenya Colony (Nairobi and Kisumu) in early March. Sladen obtained examples in Palestine on spring passage in 1918.

***Motacilla f. thunbergi* Billberg.**

No Palestine record—in fact, there is no mass migration of any Yellow Wagtail in Palestine at any season. Scarce on autumn passage in Egypt. No autumn record for the Sudan, though Reichenow (Vög. Afr.) records birds from Khartoum and Senaar without date. A regular winter visitor to northern Somaliland.

In Kenya Colony they commence to arrive at Nairobi and Naivasha during the last days of September, and are quite common all over the country by the middle of October.

This race is common on both passages in the Caucasus and southern Russia, and appears to jump direct in one long flight from those districts to its winter haunts in the tropics of Africa.

It has occurred south to the Transvaal in winter (Stark, Fauna S. Afr. i. p. 263).

Birds arrive in eastern Africa in equal numbers both on the coast and inland.

The dates for spring passage are slightly earlier than for *M. f. flava*. They are not uncommon in spring in Egypt, and seem to be very rare in the Sudan. No spring record for Palestine.

***Motacilla f. cinereocapilla* Savi.**

No Palestine record. No autumn record for Egypt. Reichenow records it from Lado and Berbera. Recorded (Nov. Zool. 1918, p. 284) as fairly common in the Elgon District (N.E. Uganda) in winter. I obtained an adult male at Entebbe on the Victoria Nyanza on 3. iv.

Not uncommon on spring passage in Egypt. Obtained on spring passage at Port Sudan on 13. v. and 16. v. (Ibis, 1909, p. 392).

***Motacilla f. campestris* Pall.**

It is curious that there should be no Palestine or Egyptian record for this form. Apparently very rare in the Sudan, though Reichenow records it from Khartoum.

This is the commonest winter Wagtail in Kenya Colony, first autumn arrivals appearing at Nairobi in the middle of September and at Nakuru on 11. ix., a few straggling south to South Africa—Transvaal and Natal.

This race is equally common on the coast and inland on autumn passage.

Birds commence to move north from Kenya Colony and Uganda about the middle of March. My latest spring record is on 3. iv. on the Victoria Nyanza, though they were in thousands on 16. iii.

At Lamu, on the east coast of Africa just north of Mombasa, they streamed north from about 24. iii. to 15. iv., and all had disappeared by 26. iv.

Reichenow records them from Berbera in Somaliland without date.

At first sight, many of the specimens I collected in eastern Africa looked very like the western *rayi*, for they had greenish heads. But *campestris* has a yellowish-green back and more yellow on the head and sides of the neck than *rayi*, the latter having a slight brown tinge on the back, which is never the purer yellow-green colour of *campestris*. Quite 30 per cent. of my eastern African *campestris* had green heads.

***Motacilla f. pygmæa* Brehm.**

A partial resident in the Egyptian Delta and the Fayoum, large numbers disappearing in mid-winter. I am not, however, aware of its occurrence outside Egypt, Butler's bird (*Ibis*, 1909, p. 392) being apparently wrongly identified (see also Sclater & Praed, *Ibis*, 1918, p. 613).

***Motacilla f. leucocephala* (Przew.).**

Yellow Wagtails with white heads have been obtained in Egypt and eastern Africa, and are supposed to be aberrations. Is Przewalski's *leucocephala* also an aberration?

It was first described in 1887 from birds obtained in the southern Altai; it was again reported by Zarudny at Merv and on the Oxus in Turkestan. Whistler shot a male at Jhelum in India on 2. v., Zarudny again collected three in the Orenburg District (Grote, *J. f. O.* 1919, p. 372), and Suschkin states they breed regularly (*sic*) in the Tschalkar District of the Khirgiz Steppes and occasionally in the Steppe Province.

Finally, Suschkin (*Messag. Ornith.* 1915) found a breeding colony at Achit Nor in north-western Mongolia, where he describes them as common in the swampy meadows, having obtained 18 birds and eggs. It would therefore appear that this race is not an aberration, and that its breeding range is a narrow strip of country running just south of the range of *beema*, from north-western Mongolia to the Khirgiz Steppes, but it is everywhere rare and local.

***Motacilla f. feldegg* Michahelles.**

Uncommon on autumn passage during September in Palestine and not uncommon in Egypt, where some years it

is abundant. A common winter visitor to the Sudan and Abyssinia from December to May. Fairly common in Kenya Colony and Uganda in winter, especially on the Victoria Nyanza from January to early April; but other birds arrive about the end of October, for I saw a small flock at Entebbe on 20.x. and several at Naivasha and Nakuru in late October. I have seen two winter birds from northern Somaliland.

Not observed on the coast of eastern Africa or at Nairobi in 1915 or 1916.

South of the Victoria Nyanza they do not seem to go, but Ayres (*teste* Gurney) obtained one in the Transvaal.

Birds appear to begin to leave the tropics in late March and the Sudan in late April. They are abundant on spring passage in the Fayoum and Wadi Natrun, but very rare in the Egyptian Delta.

A few pass north through Palestine in late March, and they have been shot in Sinai on 29. iii., and have been reported as plentiful from 12. iv. to 18. iv.

They breed just east of Aleppo in northern Syria, nine nests being found.

Flocks passed through Crete from 27. iii. to 9. iv. (*Lynes*).

Both yellow- and white-eye striped varieties have been obtained in Egypt and the Sudan.

#### ***Motacilla f. melanogriseus* (Hom.).**

No Palestine record. Two obtained by Butler in December and March at Khartoum, and there are others in the Brehm Collection at Tring from Egypt and the Sudan.

Nicoll (*Hand-list Birds of Egypt*) records it as a rare spring visitor, but gives no further details.

No record for eastern Africa.

I have seen a bird from northern Somaliland collected by Archer on 31. iii.

#### ***Lanius senator niloticus* (Bp.).**

A scarce winter visitor to Kenya Colony, a pair being obtained in the Maragoli Hills on 10. i.



**Lanius excubitor elegans** Swains. and

**Lanius excubitor aucheri** Bp.

The ranges of these two races of Grey Shrike appear to have a large overlap in southern Palestine and Egypt and on the Red Sea Littoral.

West of the Egyptian Delta (common at Mersa Matruh but absent from Sollum) all birds are pure *elegans*, whilst east of the Delta I obtained a pure *aucheri* at Helonan (Dec.), at Suez (May), and on the Suez Canal (Febr.). A bird from Jericho in the Jordan Valley, where nearly all birds are pure *aucheri*, is indeterminable, and can only be called *aucheri* > *elegans*. Pure *aucheri* also occurs at the north end of the Jordan Valley, all round the Sea of Galilee, and there is a small colony a few miles north of Acre on the coast. On the other hand, birds from the coastal plain of Palestine south of Mount Carmel, where Grey Shrikes are very rare, appear to be pure *elegans*. *Lanius elegans* becomes common round Gaza and throughout northern Sinai, and is the usual bird of the Egyptian Desert east of the Delta and on the Suez Canal throughout its length. There are no Grey Shrikes in the Judean highlands, Syrian Desert, at Damascus, or in the Lebanon, and I saw none in October when I motored down the coast from Beyrout to Acre, except the one patch near Acre.

The colour on the upper parts of these races is not a reliable character, though *elegans* usually has more white in the wing and tail. The best guide is the colour of the under parts, nearly always pure white in *elegans* and pale greyish-blue in *aucheri*, and also the spot on the under wing-coverts, which is always well-defined in *aucheri* and absent or ill-defined in *elegans*.

**Lanius cristatus isabellinus** Hemp. & Ehr. and

**Lanius cristatus phœnicuroides** (Schalow).

Both these Asiatic Shrikes occur fairly commonly in Kenya Colony in about equal numbers from the middle of November to the end of January, or at least they did during 1915, 1916, and 1917.

Most of the birds were obtained between Nairobi and the coast in December and January, though two were obtained at Kisumu on the Victoria Nyanza on 8. i. and 15. i. (both *isabellinus*), and another (also *isabellinus*) at Dar-es-Salaam on the coast of Tanganyika Territory on 25. xi.

*L. c. isabellinus* has been recorded by Reichenow (Vög. Afr.) from Bukoba on the Victoria Nyanza and Bagomoyo on the coast of Tanganyika Territory. Lönnberg records one from the northern Guaso Nyero (Kenya Colony) on 14. iii., and Oberholser records one from Kilimanjaro at 5000 feet on 9. xii.

My East African collection contains 7 adult and 2 immature *isabellinus*, and 7 adult and 10 immature *phænicuroides*. The juvenile birds are very difficult to determine from the young of *Lanius collurio*, but are never so red on the back. They usually have a slightly redder tail. The young of *isabellinus* and *phænicuroides* are still more difficult, but in most cases, December and January birds are beginning to show a slight rufous tinge on the crown in the case of *phænicuroides*.

I am not aware that *phænicuroides* has been previously recorded from south of Somaliland.

***Pycnonotus capensis vallombrosæ* (Bp.).**

*Æos vallombrosæ* Bonaparte, Comp. Rend. Paris, xlii. 1856, p. 766: Jaffa.

*Pycnonotus xanthopygos palestina* Reichw., 1916: Jaffa.

Reichenow (Orn. Monats. 1916, p. 181) separated Palestine birds from Asia Minor birds, as being greyer on the upper parts, and as being even greyer than *reichenowi* from southern Arabia. They also differ from typical Asia Minor birds in having the head and throat a purer and deeper black. Under parts greyer, the yellow of the under tail-coverts brighter. Larger than *reichenowi*. Type-locality Jaffa.

Reichenow's name is an absolute synonym of *vallombrosæ*, both type-localities being identical.

There is no doubt that in fresh autumn plumage these differences hold good and the race must be recognized. In

worn breeding plumage it is more difficult to recognize the races of this species.

This race is absent from Damascus and the Lebanon. It is scarce on the Syrian coast at Beyrout, but becomes common farther south at Tyre, Acre, Haifa, and on Mount Carmel. It occurs throughout the Jordan Valley from the Sea of Galilee to the Dead Sea and in the Yarmuk Valley, and is absent from the Judæan highlands though plentiful in the foot-hills and coastal plain south to Gaza. It is also absent from northern Sinai.

#### MUSCICAPA STRIATA.

##### *Muscicapa s. striata* (Pall.).

A male obtained at Damascus on 9. ix. is of this race. All Palestine and Egyptian birds which I have examined are similarly of this race.

In Palestine, birds commence arriving in spring in the middle of April, and nest commonly in the coastal plains and on the Judæan highlands. I never observed them in the Jordan Valley.

In Egypt, spring passage was in full swing up to the middle of May, when it suddenly stopped, the latest record being a single bird on 20. v.

In Kenya Colony, autumn migrants commence arriving in late September or early October, and are plentiful by the middle of that month; most of them remain the winter. On spring passage I noted birds moving on the coast of Tanganyika Territory and on the slopes of Kilimanjaro during the first three weeks in March. My latest spring record is on 28. iii. Mr. Turner, who was on the coast of Kenya Colony during April, never saw a single bird.

##### *Muscicapa s. neumanni* Poche.

Two spring migrants obtained at Mombasa on 29. iii. and 30. iii. respectively belong to this race. Also three birds obtained in northern Somaliland (*Archer*) from 23. ix. to 3. x.

[To be continued.]